

**ABSTRACT**

A sensor mountable within a hydraulic cylinder provides a precision signal indicative of the position of the piston. The sensor includes a flexible connector attached between the cylinder piston and a converting element for sensing the piston displacement. The converting element  
5 comprises a pick-up spool, under tension, coupled to the other end of the connector and rotatable about an axis. A lead screw engages threads on the spool, and translates linearly when the spool rotates. A non-contacting electromechanical transducer senses the position of the lead screw, and provides an output signal proportional to the motion or position of the movable element. The transducer may be an LVDT or other transducer. A high-pressure seal assembly provides  
10 an electrical path between the sensor and an external connector. A piston stop prevents the piston from damaging the sensor. The sensor is held within the cylinder by port inserts threaded into standard cylinder hydraulic fluid ports and advanced inwardly to grip the sensor.